1. (Amended) A method for measuring the agglomerative state of asphaltenes in oil containing asphaltenes, comprising applying to the oil a [signal] series of pulses of acoustic energy, each pulse comprising acoustic energy at multiple frequencies, thereby scattering at least part of the energy; detecting, for each of a plurality of pulses in the series, the scattered acoustic energy [over a selected frequency range] to produce amplitude versus time data; resolving the amplitude versus time data to obtain a [the] magnitude of the detected scattered acoustic energy at selected frequencies [within the selected frequency range]; averaging over the plurality of pulses the magnitude for each pulse at each selected frequency; and determining from the averaging the agglomerative state of the asphaltenes.

2. (Amended) A method as set forth in claim 1 wherein the selected frequencies [within the selected frequency range] comprise at least three different frequencies.

3. (Amended) A method as set forth in claim 1 wherein the selected frequencies [within the selected frequency range] comprise at least fifteen different frequencies.

7. (Amended) A method as set forth in claim 6, wherein the scattered acoustic energy is detected over a [selected] frequency range [is] of from about 0.1 MHz to about 20 MHz.

8. (Amended) A method as set forth in claim 7, wherein the scattered acoustic energy is detected over a [selected] frequency range [is] of from about 0.1 MHz to about 200 MHz.

9. (Amended) A method as set forth in claim 8, wherein the scattered acoustic energy is detected over a [selected] frequency range [is] of from about 14 MHz to about 20 MHz.

15. (Amended) A method as set forth in claim 1, wherein the [signal of acoustic energy is applied as a pulse and the step of] resolving [the magnitude of the detected scattered acoustic energy at selected frequencies within the selected frequency range] of the amplitude versus time data comprises gating the detected scattered acoustic energy to that part of the detected energy emanating from a focal region and Fourier transforming the [detected scattered energy] amplitude versus time data into a magnitude vs. frequency format.

16. (Amended) A method as set forth in claim 1, wherein the [signal] pulses of acoustic energy [is] are applied as a tone-burst and the step of resolving of the [magnitude of the detected scattered acoustic energy at selected frequencies within the selected frequency range] amplitude versus time data comprises detecting the magnitude of the scattered energy at selected frequencies [within the selected frequency range].

17. (Amended) A method as set forth in claim 1, wherein <u>the averaging over the series of pulses the magnitude for each pulse at each selected frequency produces an average of the magnitude for each selected frequency, and the</u> determining <u>of</u> the agglomerative state of the asphaltenes is effected by comparing the [distribution of the asphaltene particles scattering acoustic energy within the selected frequency range] <u>that average for each selected frequency</u> with a standard.

21. (Amended) A method for measuring the agglomerative state of asphaltenes in an oil containing asphaltenes comprising:

a. removing a sample of the oil and without diluting the oil;

b. applying to the <u>sample</u> [oil a signal] <u>a series of pulses</u> of acoustic energy<u>, each pulse comprising acoustic energy at multiple frequencies</u>, thereby scattering at least part of the energy;

c. detecting<u>, for each of a plurality of pulses in the series,</u> the magnitude of the scattered acoustic energy [over a selected frequency range] <u>at selected frequencies to produce amplitude versus time data</u>;

d. resolving <u>the amplitude versus time data to obtain a</u> [the] magnitude of the detected scattered acoustic energy at selected <u>incremental frequencies</u> [increments within the selected frequency range];

e. <u>averaging over the plurality of pulses the magnitude for each pulse at each selected frequency</u>;

f. deriving from [such resolution] <u>the averaging</u> a distribution of the relative size of asphaltene particles scattering acoustic energy [within the selected frequency range]; and

[f.] <u>g.</u> determining the agglomerative state of the asphaltene particles.

24. (Amended) A method for controlling the agglomeration of asphaltenes in oil which comprises applying a [signal] <u>series of pulses</u> of acoustic energy to the oil<u>, each pulse comprising acoustic energy at multiple frequencies</u>, thereby scattering at least a part of the energy; detecting<u>, for each of a plurality of pulses in the series,</u> the scattered energy [over a selected frequency range] <u>at selected frequencies to produce amplitude versus time data</u>; resolving <u>the amplitude versus time data to obtain a</u> [the] magnitude of the detected scattered energy at selected <u>incremental frequencies</u> [increments within the selected frequency range]; <u>averaging over the plurality of pulses the magnitude for each pulse at each selected frequency to</u>